M/015/061

State of Utah
Department of Natural Resources
Division of Oil, Gas & Mining
Minerals Reclamation Program
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

ATTENTION: D. Wayne Hedburg, Permit Supervisor

Re: Last Chance Bentonite Mine Plan Review, Western Clay Co., M/015/061 - Emery County, Utah.

Gentlemen:

This letter is in regards to a preliminary submittal presented to you on January 4, 1994. The purpose was to get your input and response prior to making a formal mining and reclamation plan. On May 28, 1994, we received a response with several comments which will need to be addressed before a tentative approval may be granted.

On June 3, 1994, I met with Mr. Hedburg and staff. Reviewed comments and took notes on requests made.

There was no map showing the area on a 1 inch to 200 foot scale. We retained Olympus Aerial Survey, Inc., to prepare a base map on a 1 to 200 foot scale with 10 foot contours. We never received the map until the first part of October. Since that time we have made new maps that follow the requests you made in our meeting of June 3, 1994.

Our response is in a format similar to your letter with comments dated May 26, 1994, beginning with:

R647-4-105-MAPS, DRAWINGS AND PHOTOGRAPHS

105.1.13- ROUTE OF ACCESS

Comment - Please provide the Division with a map showing the proposed route of access to the mine site from the nearest publicly maintained road. Please use an appropriate scale so an accurate measurement of the disturbed area associated with this road may be taken.

Answer - We have had Olympus Survey prepare a base map. We have prepared three maps illustrating the following.

a - Access road in relation to county road.

b - Pit outline.

c - Outline of permit area.

d - Area of plant life and plant soil media.

e - Area of no plant life or soil cover.

f - Profiles showing original surface reclamation profile and pit profiles.

g - Stockpiles (waste & topsoil)

105.2.12 - BORDER OUTLINING ACREAGE.

Comment - The operator needs to provide a map which clearly shows the extent of all existing and proposed mining disturbance, including the boundaries for highwalls, pits, waste piles, topsoil piles, haul roads, etc.

Answer - The above mentioned maps illustrates the requests made.

105.3.17 - RECLAMATION TREATMENT MAPS

Comment - Please provide the Division with a reclamation treatments map to identify the location and the extent of the reclamation work (backfilling, regrading, topsoiling, different vegetation practices, etc.) to be accomplished by the operator upon cessation of mining operations. This drawing shall be utilized to determine adequate bonding and reclamation practices for the site. This map should include compacted areas which will need to be ripped with a dozer, areas which will be regraded, fertilized, mulched, seeded, etc. Please identify the various areas with borders or different crosshatching.

Answer - We have supplied maps identifying the area that will require backfill, recontouring, discing, fertilizing and mulching.

The access road will be graded back to its natural contour plowed with a farm disc-fertilized and mulched as needed to form a environment for seeding.

The pit area contour is illustrated in our mine plan and reclamation map.

The pit will be backfilled to form a contour that will provide drainage into the present drainage system.

The backfill will come from the waste piles that contain subgrade bentonite. It is most probable there will be adequate waste material to make the necessary slope for drainage. If it does not, material will be borrowed from the highwall side of the pit.

As noted on the map a large portion of the pit area does not have any topsoil or vegetation. It is apparent there will not be enough topsoil to completely cover the pit for reclamation purposes. The

operator will attempt to spread the cover for plant life as much as possible.

The topsoil is more of a gravel with silt than a soil. The topsoil forms only a thin veneer over the area that requires stripping. It is much the same within the area requested for permitting.

The operator will use a farm disc to turn the backfill and topsoil to prepare a bed for seeding. They can also provide an alfalfa mulch.

A farm disc is used in the mining of the bentonite and will be used for reclamation.

R647-4-106: OPERATION PLAN

106.3 - ESTIMATED ACREAGE

Comment - Please provide acreage estimates for each type of area (e.g. roads, pits, waste areas, stockpiles, etc.) which match the borders shown on the reclamation treatments map. This will aid in bond calculations.

Answer - The following estimates on acreage were taken from the reclamation map showing access road, stockpiles, pit outline and area with no vegetation.

LOCATION	ACRES
1 - Pit Area	6.10
2 - Access Road	0.40
3 - Topsoil East Pile	0.30
4 - Topsoil Center	0.13
5 - Topsoil West	0.14
6 - Waste East	0.40
7 - Waste Center	0.70
8 - Waste West	0.40
9 - No Vegetation	1.9

106.4 - NATURE OF MATERIALS INCLUDING WASTE/OVERBURDEN AND ESTIMATED TONNAGE

Comment - Please provide an estimate of the volume of overburden (in cubic yards) to be removed and stockpiled from each of the newly proposed pits. Will this stockpiled overburden be of sufficient volume to backfill the pits to the 3h:1v reclamation profile as stated in item 4 of the BLM October 29, 1991 letter?

The operator needs to provide information concerning the nature (general chemistry) of overburden/waste materials (analyze for same parameters listed for topsoil listed under 106.5).

Answer - The largest portion of the material covering the bentonite will be removed as topsoil. Because of the economics it is not feasible to strip overburden to mine bentonite. There may be a maximum of 25 feet taken if necessary on the down dip side.

The waste piles are created from contaminated and subgrade bentonite. It is speculative to even guess what the waste volume will be. However, if we can judge from past operating experience there is approximately 5 feet of bentonite that is contaminated prior to getting into marketable bentonite. Also there are lenses of lower grade that is created by faulting, fracturing. Occasionally bands of foreign material has been laid down within the bed itself. This has to be removed as waste.

The estimate for volume of waste and overburden removed is:

OVERBURDEN	79,000	cu. yds.
WASTE	49,500	cu. yds.
TOTAL	128,500	

BACKFILL FOR RECLAMATION 215,000 cu.yds.

BACKFILL TAKEN FROM BORROW AND HANGING WALL OF PIT (Borrow is ridge in center of pit) 86,500 cu. yds.

Enclosed is an analysis of the topsoil and bentonite.

106.5 - EXISTING SOIL TYPES, LOCATION OF PLANT GROWTH MATERIAL

Comment - Please provide specific information (Order 3 soil survey) on existing soils to be disturbed by mining operations,including a description of the soils found in the area including depth and extent of soils to be impacted by operations. Chemical and physical analysis of the soil (and/or any substitute soil materials to be used), which includes at a minimum, texture, pH, SAR, EC, nitrogen, phosphorus and potassium needs to be provided.

Answer - Four samples were taken and submitted to the soil testing lab at the Utah State University. The ID and sample results are attached.

The texture of the soil is a granular, gravel type with a fine silt that has been blown in from the typical desert dust storms.

The thickness ranges from 1" up to occasional spots that are one foot thick. Overall the plant media is not over six inches thick. Underlying the soil is mostly a thin bedded sandstone or conglomerate that is part of the Cedar Mountain or Burro Canyon formation.

106.6 - PLAN FOR PROTECTING AND REDEPOSITING EXISTING SOILS

Comment - The plan needs to describe how topsoil piles will be protected. At a minimum they need to be stabilized against erosion (vegetated) and signed.

Answer - The topsoil piles are illustrated on the maps. The piles are separated because of convenience of handling and redistribution. The piles will be signed and sprayed with a dust retardant until plant life is sufficient to prevent erosion.

106.7 - EXISTING VEGETATIVE COMMUNITIES TO ESTABLISH REVEGETATION SUCCESS

Comment - Please provide specific information regarding the current vegetation on site. What vegetative communities are/were present prior to mining, what plant species existed, relative cover values for vegetation and the methodology used to obtain vegetation data.

Answer - The vegetation on site is very sparse that covers approximately 5% or less. No water accumulated or is available in the area. No concentration of plant life that would create a dense area of plants exist. The plants are small. The largest being Shadscale reaching a height of about one foot and one foot in diameter. The remainder plants being a grass that as we were told is an Indian Rice Grass. Other species have been identified.

The method used to estimate the coverage and the type of species was by measuring a designated plot. The plot was staked off (see photo) and measured. The plants were counted and color coded to match the species. Three plots, 10 feet square, were established in different locations. It was found the plots were very similar. We have enclosed a photo showing the area in which the pit will disturb. We also have left one plot staked and flagged for any reference that may be needed.

R647-4-107 - OPERATION PRACTICES

107.5 - SUITABLE SOILS REMOVED AND STORED

Comment - Please identify those areas from where topsoil will be taken or stripped. How will it be stripped and where will it be stockpiled? Once stockpiled, they need to be protected with signs and berms. Topsoil stockpile locations need to be identified on the maps. The Division encourages salvaging topsoil even if only a few inches are available. This will aid in revegetation efforts and less disturbance from borrow areas will need to be created.

Answer - The topsoil stockpiles are shown on two of the maps. The topsoil will be stripped with a rubber tired front end loader and

deposited in the designated stockpile areas. The stockpiles will be sprayed with a dust retardant until plant growth can stabilize it. Each stockpile will have a sign posted identifying it as topsoil.

107.6 - CONCURRENT RECLAMATION ON AREAS WHEN NO LONGER NEEDED

Comment - Please identify any areas that shall be reclaimed concurrent with the mining operations.

Answer - It is the operators intent to reclaim the eastern portion of the pit if it does not interfere with the operation. It is the operators intent to reclaim the area as soon as all minable bentonite is removed. The main reason being the equipment used for mining will be needed for reclamation. Therefore, mobilization will be eliminated.

R647-4-109 - IMPACT ASSESSMENT

109.4 - SLOPE STABILITY, EROSION CONTROL, AIR QUALITY, PUBLIC HEALTH AND SAFETY

Comment - Has the Division of Air Quality been notified of this operation? Have they required any permits?

Answer - Attached is a letter from L. Carl Broadhead, consulting engineer, specializing in air quality. The letter is dated July 25, 1994, and is self explanatory.

R647-4-110 - RECLAMATION PLAN

110.1 - CURRENT LAND USE AND POSTMINING LAND USE

Comment - It is assumed the current land use is limited grazing and recreation. This needs to be identified in the NOI. Also, please provide a description of the intended post mining land use (this needs to be coordinated with the BLM).

NOT INCLUDED

Answer - Attached is copy of postmining land use obtained from the BLM in Price, Utah.

110.5 - REVEGETATION PLANTING PROGRAM AND TOPSOIL REDISTRIBUTION

Comment- The BLM has recommended the following seed mix for reclamation. The operator will need to commit to using this seed mix or develop another mix in consultation with the BLM.

SPECIES	RATE*
Indian Ricegrass (Oryzopsis hymenoides)	2
Blue grama (Bouteloua gracilis)	2

Galleta (Hilaria jamesli)	2
Yellow sweetclover (Melilotus officinalis)	2
Shadscale (Atriplex confertifolia)	2

*Rate is pounds of pure live seed (PLS) per acre.
A nitrogen fertilizer (21-0-0) should be added at 40 pounds/ac.

This seed mix should be drilled onto prepared seedbed late in the fall, (late October). If regrading was completed prior to September 1, the area should be ripped or disced prior to seeding.

Tilling in 3,000-4,000 pounds of alfalfa hay into the top 6 inches of soil at the time of reclamation will greatly aid in the establishment of vegetation.

Answer - The operator will follow the above recommendations.

R647-4-112 - VARIANCE

Comment - No variances were requested.

Answer - Western Clay does not want to be responsible for attempting to vegetate the bentonite. This will be in the area shown on map where there is no topsoil or vegetation.

R647-4-113 - SURETY

Comment - Please provide a reclamation cost estimate to the Division. This will be used as the basis for the Division's reclamation calculations.

Answer - Reclamation Detail.

Western Clay estimates.
Backfill Pit (to be non-impounding).
Hauling and placing topsoil.
Discing, mulching, fertilizing and seeding.
Removing culvert and recontour access road.

Total Disturbed Area = 20.2 Acres.

Reclaimed Area 10.5 Acres.

Description	Amount	$/unit	Cost-$
Pit Backfilling	D9 @ $183/hr	70 hrs.	12,810.00
Topsoiling	4 acres	1,100.00	4,400.00
Revegetation	10.5 acres	300.00	3,150.00
Removing culvert & contouring access rd.	8 hrs	165.00	1,320.00
		SUBTOTAL	$21,680.00

+ 10 CONTINGENCY	2,168.00
SUBTOTAL	$23,848.00
+ 5 YR ESCALATION(1.42%)	1,693.00
TOTAL	$25,541.00

AVERAGE COST PER ACRE $2,432.47

If there are any further questions please contact us. It is very important that we expedite this as soon as possible. The reason being our boundary limits on our present permit is going to curtail our mining operations. We will cooperate as much as possible to submit our final or formal application. Your cooperation is appreciated.

Sincerely,

E. M. Garrick
Agent and Consultant